



Figure 1. *Tapirira rubrinervis* Barfod. —A. Flowering branch. —B. Distal floral branch. —C. Flower at staminate anthesis. —D. Longitudinal section of C. —E. Infructescence. (A–D based on *van der Werff et al. 11971*; E based on *Tipaz et al. 1339*.)

(5–)8–12(–16) cm long, rachis to 15 cm long in the 7-foliolate leaves, both rachis and petiole glabrous, brown to ferruginous, terete, with lens-shaped lenticels and fine longitudinal ridges; leaflets opposite, lateral petiolules 5–10 mm, terminal petiolule up to 8 cm long, glabrous, with dorsal furrow from attenuated leaf base; leaflets markedly different in size, the proximal ones (if present) smallest, 6–8 × 4–5 cm, the terminal one largest up to 25 × 14 cm, elliptic to obovate, chartaceous in dried condition, lustrous green, glabrous to minutely puberulent above, smooth matte green below, margin entire, subrevolute, apex rounded to obtuse (rarely with short acumen), base obtuse to rounded, oblique, shortly attenuate; venation brochidodrome pinnate, midvein prominent often in groove above, very prominent and red beneath, secondary veins opposite to alternate, prominent above, prominent and red below, veinlets only clearly visible and somewhat impressed below. Inflorescence paniculate, arising in the axils of new leaves and grouped at a subterminal position, at anthesis usually superseded by juvenile leaves at the distal nodes, decreasing in size and degree of development toward the tip of the branch, the proximal lateral inflorescence being up to 40 cm long at anthesis, slightly curved, with peduncle to 14 cm long, all axes with ferruginous pubescence varying in density, flowers typically borne in congested groups of three on short monopodial flower-bearing branches, each subtended by deltoid bracts ca. 0.5 mm long, floral bracts conspicuous, 0.3–0.5 mm long, often rounded apically, bracteoles inconspicuous to conspicuous on single lateral flowers toward the distal end of the flower-bearing branches, inserted immediately below the abscission zone. Flowers at staminate anthesis sessile, rarely with pedicel up to 1 mm, sepals 5, 0.7–0.8 × 0.7–0.8 mm, rounded, with sparse pubescence on abaxial faces, marginally ciliate; petals 5, 1.5–1.8 × 0.7–0.9 mm, ovate to elliptic, with visible venation in dried condition, reflexed; stamens 10, of unequal length up to 2 mm long, filaments slender, subulate, anthers 0.2–0.4 mm long, rounded; disc about 1.0 mm wide, 10-crenulate; rudimentary pistil 0.5–0.6 mm long, tomentose to pilose; ovary partly sunken in disc; styles 5, straight to slightly recurving; stigmas discoid. Flowers at late pistillate anthesis with developing pistil not available. Green fruits up to 10 mm long, some with wilted, 0.8–1.0-mm-long stamens at the base, apparently with aborted thecae. Mature fruits not seen.

Leaf morphology. The leaves are few-foliolate, typically trifoliolate. From the material, it appears that trees with 5-foliolate leaves are common. One

specimen (*Tipaz et al.* 1031) has simple (unifoliolate) leaves, at least toward the tips of the inflorescence-bearing branches.

Phenology. The sexual expression within *Tapirira* needs to be studied in detail before any conclusions can be drawn. As interpreted here, *T. rubrinervis* is functionally dioecious like other species of *Tapirira*. However, most of the material examined is in bud and difficult to determine to sex. Fully open flowers with reflexed petals and unequal stamens, to 2 mm long, were only found in *Quelal* 647 and *van der Werff et al.* 11971. The anthers are past dehiscence, and a large proportion of the pollen grains has germinated.

In other specimens, e.g., *Aulestia* 1257, *Tipaz et al.* 1339, and *Mendez et al.* 400, flowers have just opened. These are generally smaller than the fully opened flowers described above, with petals 1.2–1.3 mm long and stamens of equal length. The filaments are only 0.3–0.4 mm long and the anthers rounded. These are interpreted as functionally staminate flowers at early anthesis. Aberrant pollen grains were not observed, and the gynoecium was very similar to that of the long-staminate flowers, except for being a little smaller. It should be noted that in the material examined, I did not see pistillate flowers with developing, fertilized gynoecia.

Fruiting material of *Tapirira rubrinervis* was long past anthesis and gave few indications of the morphology of the assumed pistillate flower. Only the 0.8–1.0-mm-long, wilted stamens suggest that the flowers are different in proportions from their staminate homologues.

Based on this limited evidence, it cannot be excluded that *Tapirira rubrinervis* has hermaphroditic flowers with sexual expression separated temporally but not spatially. This seems unlikely, since all other species of *Tapirira* are known as functionally dioecious or polygamodioecious.

Common name. “Sajo de arriba” (Esmeraldas), “Cuide” (Carchi).

Use. Fibers are extracted from this species according to *Quelal et al.* 267. What they are used for is not specified, however. The fruits are eaten by several birds in the area.

Distribution. *Tapirira rubrinervis* is only known from the province of Carchi in Ecuador.

Paratypes. ECUADOR. **Carchi:** border area between Prov. Carchi and Esmeraldas, km 20 Lita–Alto Tambo road, 700 m, 23 June 1991 (fr), *H. van der Werff*, *B. Gray* & *G. Tipaz* 11894 (AAU, MO, QCA, QCNE); Parroquia Tobar Donoso, Reserva indígena Awá, bosque primario noreste de la casa comunal, cerca de Río Botella, 78°24'W, 1°0'N, 650–1000 m, 19–28 June 1992 (fr), *G. Tipaz*, *J. Zuleta* & *N. Guanga* 1339 (AAU, MO, QCA, QCNE); Parroquia Chical, Gualpi Medio, Reserva Indí-

gena Awá, Sendero a San Marcos al norte de la casa comunal, 23–27 May 1992 (fl, bud and early anthesis), G. Tipaz, C. Quelal & G. Cantincuz 1031 (AAU, MO, QCA, QCNE); Chical, Reserva etnica Awá–Camumbí, 78°16'W, 0°53'N, 1700–1900 m, 20–29 July 1991 (fr), C. Quelal, C. Aulestia & F. Nastacuáz 267 (AAU, MO, QCA, QCNE); Comunidad de Gualpi Medio, 78°16'W, 1°1'N, 900 m, 21 May 1992 (fl, staminate anthesis), C. Quelal, G. Tipaz & J. Taicuz 647 (AAU, MO, QCA, QCNE); San Marcos de los Coaiqueres and surrounding perhumid forest on trail Chical–Tobar Donoso, 78°16'W, 1°6'N, 800 m, 8 Feb. 1985 (fl, bud), B. Øllgaard, J. Korning, K. Thomsen & T. Illum 57652 (AAU, MO, QCA); Parroquia Alto Tambo, la Unión, Reserva etnica Awá, 78°26'W, 00°52'N, 250 m 22 Mar. 1993 (fl, bud and early anthesis), C. Aulestia & M. Aulestia 1259 (AAU, MO, NY, QCA, QCNE); Parroquia el Chical, San Marcos, 78°14'W, 01°06'N, 900–1100 m, 20–30 Apr. 1993 (fl, bud and early anthesis), P. Méndez, J. Aulestia & J. Pai 400 (AAU, MO, NY, QCA, QCNE).

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